



Steven B. Bolt, PE, PTOE
President
Orth-Rodgers & Associates, Inc.
301 Lindenwood Drive, Suite 130
Malvern, PA 19355
610.407.9700

Representing the American Council of Engineering Companies

Before the House Committee on Transportation and Infrastructure
Subcommittee on Highways and Transit
Hearing on Practical Design and Context-Sensitive Solutions
in Developing Surface Transportation Projects

June 10, 2010

Good morning Mr. Chairman and Honorable Members of the Subcommittee. Thank you for the opportunity to provide testimony at this hearing. My name is Steve Bolt, and I am the President of the Pennsylvania-based consulting engineering firm Orth-Rodgers & Associates. We have 85 engineers at offices in Pennsylvania, New Jersey and Nevada, providing transportation engineering, planning and environmental services for a broad range of clients, including state departments of transportation, municipal and county governments, utility companies and planning organizations.

I also currently serve as the President of the American Council of Engineering Companies (ACEC) of Pennsylvania. ACEC – the voice of America’s engineering industry – is a national federation of 51 state and regional councils representing the great breadth of America’s engineering industry. Member firms employ hundreds of thousands of engineers, architects, land surveyors, scientists, and other specialists, responsible for more than \$200 billion of private and public works annually.

This morning I’d like to speak briefly about Smart Transportation in Pennsylvania – known elsewhere as Context Sensitive Solutions or CSS. Broadly speaking, Smart Transportation is partnering to build great communities for future generations by linking transportation investments and land use planning and decision making. The municipal planning organization in our region, the Delaware Valley Regional Planning Commission, hired Orth-Rodgers & Associates in 2004 to develop the Smart Transportation Guidebook. Working closely with our partners at PennDOT and NJDOT, we completed the Guidebook in March 2008. The Guidebook provides assistance in project planning on state and local roadways, including understanding land use and transportation system contexts, as well as outlining specific factors for design

considerations, such as travel lane widths, parking, shoulders, medians, intersections, bicycle and pedestrian facilities, transit accommodation, and streetscaping.

I am very proud that the Federal Highway Administration awarded the Smart Transportation Guidebook its 2008 Transportation Planning Excellence Award, and has endorsed the processes outlined in the Guidebook.

For more information and detail, the link to PennDOT's website is:

www.smart-transportation.com

Since publication, PennDOT and Orth-Rodgers have been actively campaigning with engineers, municipalities and planners to conduct familiarization and training sessions across the Commonwealth. As Smart Transportation represents a change in the way that PennDOT develops and designs transportation projects, training is an important tool in delivering the message. The goal is to integrate planning and design of transportation projects that foster the development of sustainable communities, working within the realities of financial constraints, community aspirations, land use and environmental considerations.

While PennDOT has coined the term "smart transportation", I don't believe this should be construed as meaning what we were doing before was "less than smart". It does mean that we're taking a larger, perhaps more "holistic" view of the transportation planning and design process that takes into consideration the broader range of factors necessary to deliver a successful project to the public.

Ten themes have emerged as we turn these principles into how we develop transportation projects:

- Money counts
- Choose projects with high value/price ratio
- Enhance the local network
- Look beyond level-of-service
- Safety first and maybe safety only
- Accommodate all modes
- Leverage and preserve existing investments
- Build towns not sprawl
- Develop local governments as strong land use partners
- Understand the context; plan and design within the context

Ostensibly, this all makes sense and sounds simple enough. So what is the change from past practice? At the planning level, previously the DOT developed projects that were on the TIP (or Transportation Improvement Program) with little or no input at the municipal level. Now, the municipalities filter the projects that make it onto the TIP as part of their comprehensive land use planning efforts. At the design or engineering level, the Guidebook gives greater flexibility in design which, in turn, lets us do more within the budgets we have. And this applies to every single project we do now.

In Pennsylvania, we have two examples of Smart Transportation implementation I would like to highlight:

- US Route 202, Section 700 – This project was initially designed as a limited access expressway with a 300 foot wide right-of-way and a price tag of \$465 million. Smart Transportation principles reduced the footprint of the roadway, expanded the roadway network and saved \$265 million.
- Marshalls Creek Bypass – This project was initially designed as a four lane limited access highway with a full interchange with a \$70 million price tag. Application of Smart Transportation principles and subsequent value engineering reduced the project and saved \$45 million.

I have included slides that further highlight these projects, both of which would be done differently today and were rescued due to fiscal constraints. We have a better process in place now and do better planning with our municipal partners.

A number of states, together with Pennsylvania, are making significant strides by following a Smart Transportation model to how they plan and design their infrastructure. Among the states leading this effort are New Jersey, Massachusetts, Vermont, Missouri, Washington, and your home state, Mr. Chairman, Oregon with its CS3 process. Working through our industry organization, other stakeholders, and AASHTO, we should work to educate the remaining states on the value of this approach and encourage them to adopt Smart Transportation or similar CSS principles for project delivery.

At the planning level some states may be concerned about facilitating change with their municipal partners or be concerned about a loss of their traditional role. At the design level, while AASHTO guidelines provide flexibility in design, we engineers are a conservative group. When we build bridges and dams and highways, the public prizes that conservatism. However, I think that a fear of tort liability has replaced sound engineering judgment by some designers. Smart Transportation's use of flexibility in design standards promotes sound engineering judgment within the context of the community.

I note that the draft surface transportation authorization bill that this subcommittee approved last summer mandates consideration of "practical design standards" which you defined as a collaborative, interdisciplinary approach that involves interested entities to develop a facility that fits the physical setting, balances costs with scope, maintains safety and mobility, and preserves the scenic, aesthetic, historic and environmental resources.

Those matters are generally issues that any engineer should consider in planning and design and would be the subject of negotiations with the agency/owner over the scope of the project. But, let me make you aware that ACEC is concerned that new federal mandates could be used to delay a project, e.g. lawsuits or regulatory challenges over failure to consider a certain aspect of a project. We would prefer that the bill provide incentives for states to adopt these CSS strategies and practices, rather than a hard-and-fast mandate. Flexibility is key, and despite good intentions, legislative language can often have unintended consequences that stifle the intent.

As you are well aware, it takes far too long for projects to move through the many stages of project delivery from conception to construction. The subcommittee bill makes efforts to

)
)
facilitate project delivery, and CSS principles can be used to help alleviate some of those environmental and community-based concerns that often slow projects down. If applied early, it can decrease the delivery time by reducing re-work. Since Smart Transportation emphasizes collaboration with the community and the examination of a wide range of alternatives, it will better avoid the need to revisit a project if it encounters community opposition or is deemed to be unaffordable. Additional federal mandates and bureaucratic red tape will certainly not help deliver projects faster. To the extent that you can clarify or protect against those possibilities, we would encourage you to do so.

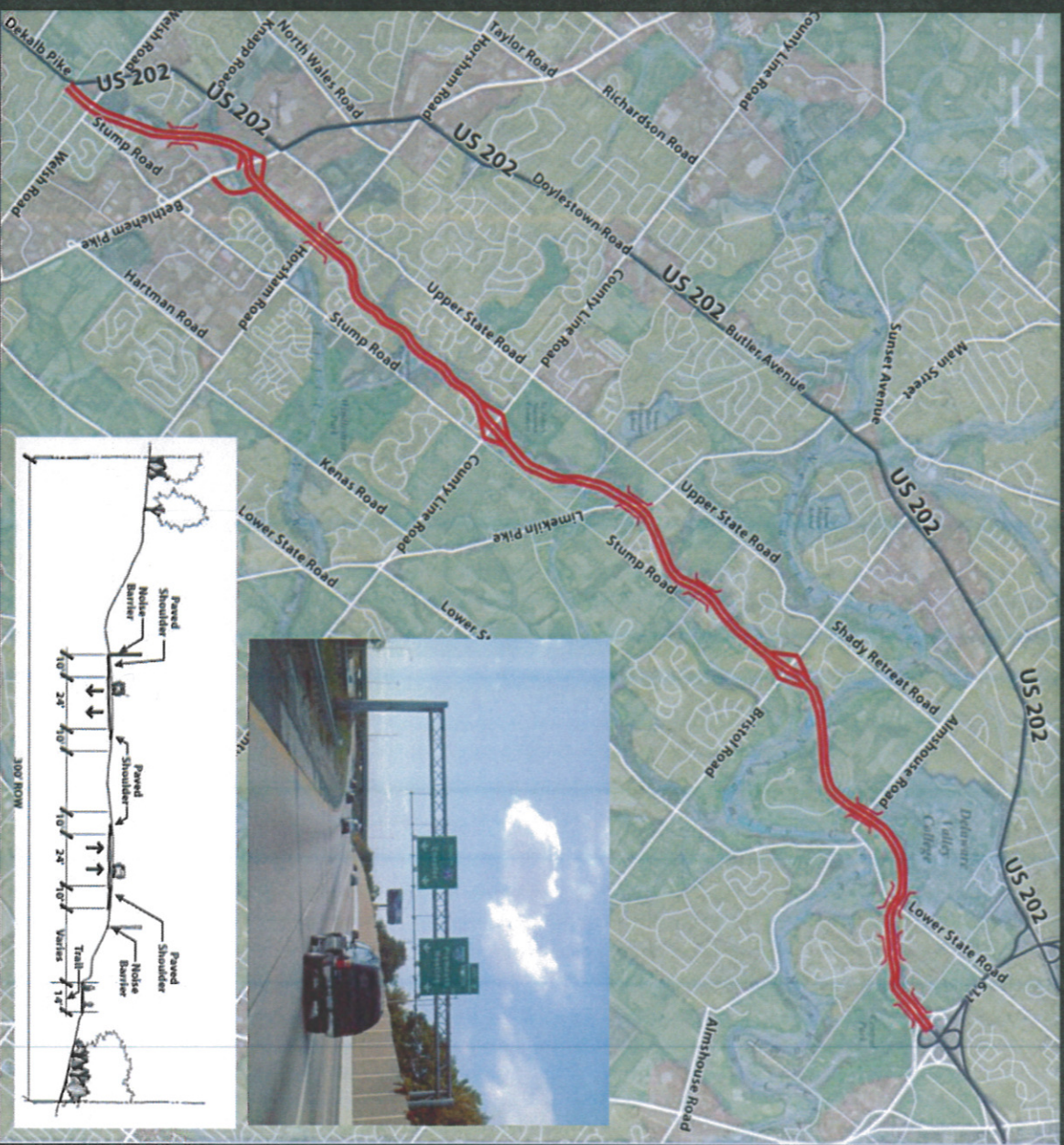
Let me make one final point about the interaction of funding with Smart Transportation processes. With unlimited funds, we could build our way out of congestion, but we should ask ourselves how that balances against a complete street and roadway network that accommodates all users. The Smart Transportation approach helps us strike that balance.

Mr. Chairman, I would ask the subcommittee to develop a comprehensive, sustainable long-term funding solution that embraces the principles I've outlined today. I would be remiss if I did not encourage you and the rest of the subcommittee to continue your fight to find the revenues necessary to fund the maintenance and improvement of our transportation network. Resource constraints certainly force us to be smarter in how to develop and design projects, but at the end of the day, these projects need money to proceed. Our transportation infrastructure is a litmus test of where the nation will be in ten years. China spends 12% of its GDP on its transportation infrastructure, European countries spend 5% of their GDP and the United States a mere 2% of GDP. We are in grave danger of falling behind and frittering away our economic competitiveness by not investing the necessary resources to maintain and improve our system.

Thank you again for the opportunity to testify. I would be happy to answer any questions the subcommittee may have.

US Route 202 – Section 700

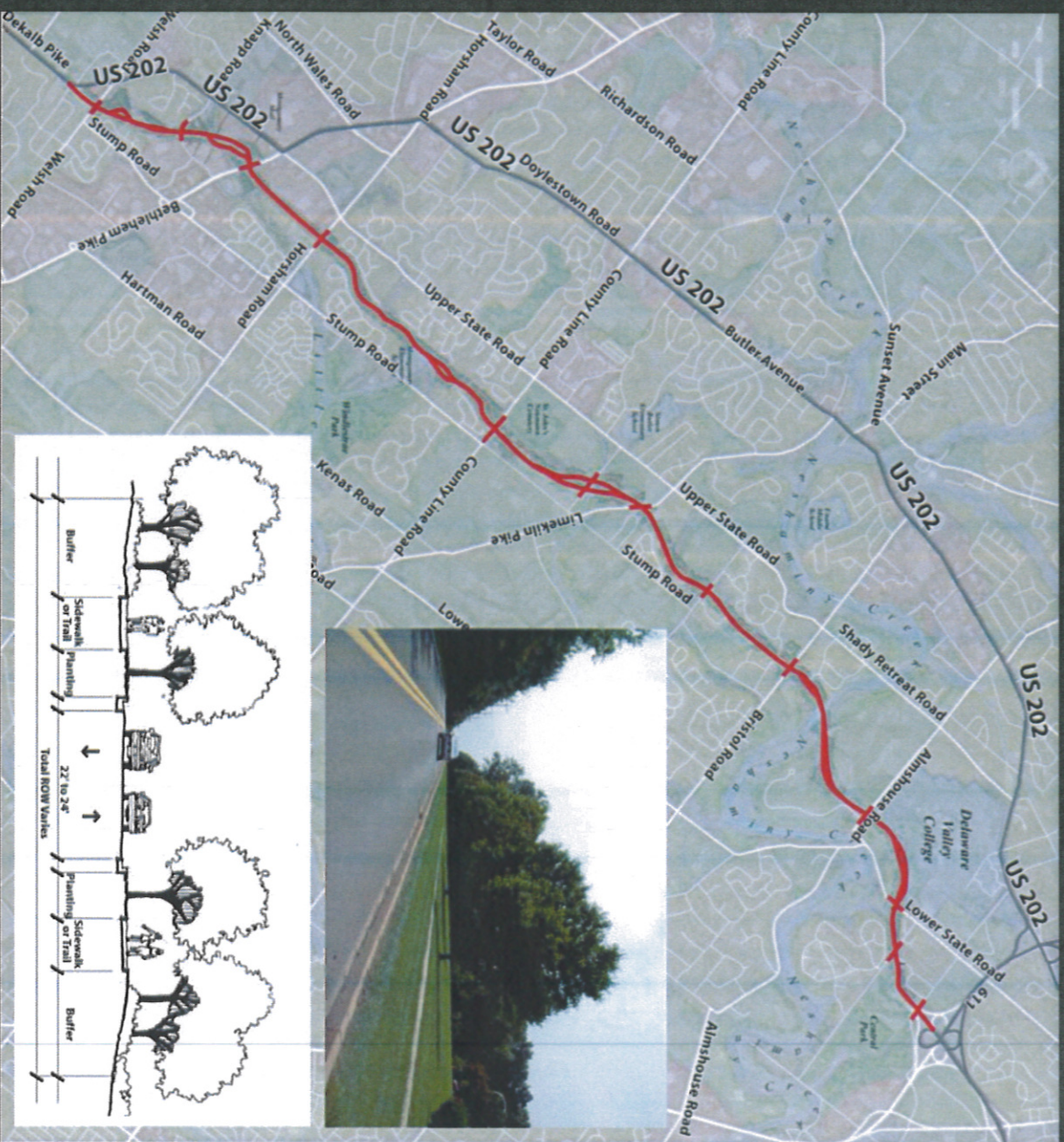
- Initially designed as a full limited-access expressway with an estimated cost of \$465 million
- Encountered community opposition, funding limitations



US 202 Parkway, Montgomery/Bucks Counties, District 6

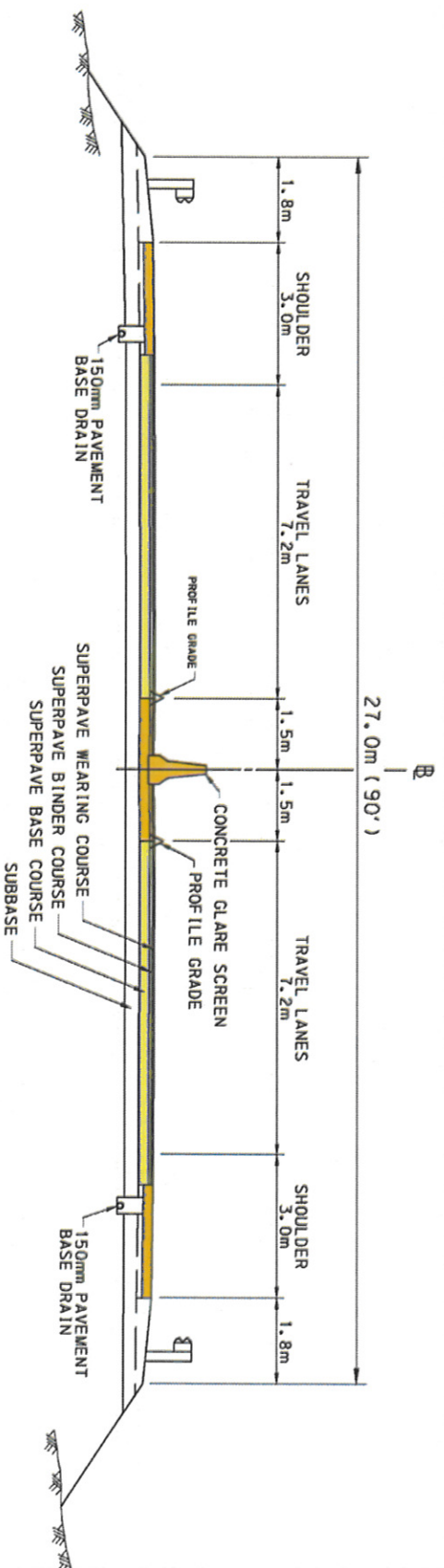
US Route 202 – Section 700

- Redesigned as an at-grade parkway with community collaboration
- Also includes parallel multi-use trail
- Operating Speeds of 30-40 mph
- Cost Savings \$265 million

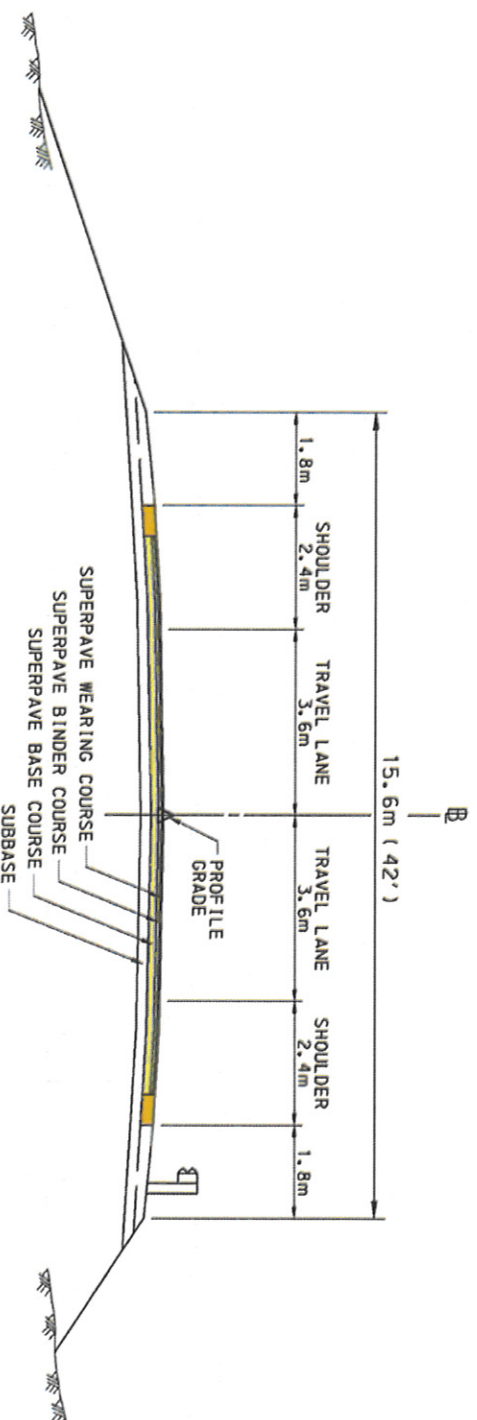


US 202 Parkway, Montgomery/Bucks Counties, District 6

Marshall's Creek Traffic Relief Project



**TYPICAL TANGENT SECTION
OLD DESIGN**

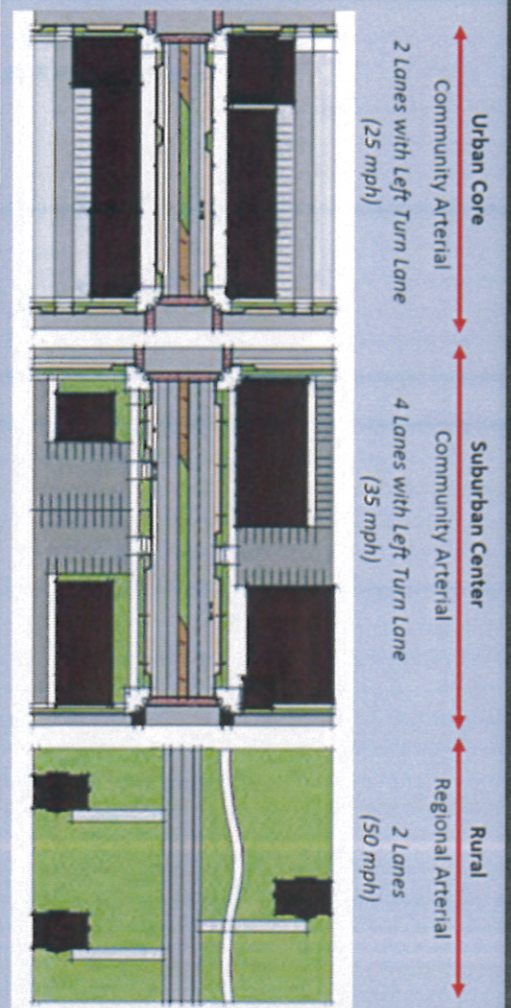


**TYPICAL TANGENT SECTION
NEW DESIGN**

Changing the Rules in PA

Smart Transportation Guidebook (incorporated with PennDOT's Design Manual)

- Use **flexible design** on all projects
- **Increase** coordination with local municipalities
- **Link** existing and future **land use contexts** and **roadway design** values
- Design to a **desired operating speed**



Changing the Decision-Making Process

Revised Project Delivery Process at PennDOT

- Including partners in the development of new process- Municipalities, MPOs/RPOs, Resource Agencies
- Emphasis on planning
- Organizational changes to respond to new focus
- Link Mobility Plan, LRTPs and TIPS – and reduce delivery times
- Develop Smart Transportation selection criteria for TIPS & LRTPs



Partnering Actions

PennDOT and Planning Partners

- Work with municipalities to **understand** land development decisions and limitations
- Work together to **understand** how to manage and maintain existing transportation assets
- **Understand** local planning and transportation goals and **align** project alternatives with these **goals**

Municipalities

- Make land use decisions based on understanding of long-term transportation impacts and fiscal realities
- Improve local network connectivity
- Adopt ordinances that promote **smart** transportation (access management, mixed-use, TOD, etc.)
- Promote **alternative modes** of transportation
- **Plan regionally** and work with all levels of government

Identifying and Using Land Use Contexts

RURAL

SUBURBAN
CORRIDOR

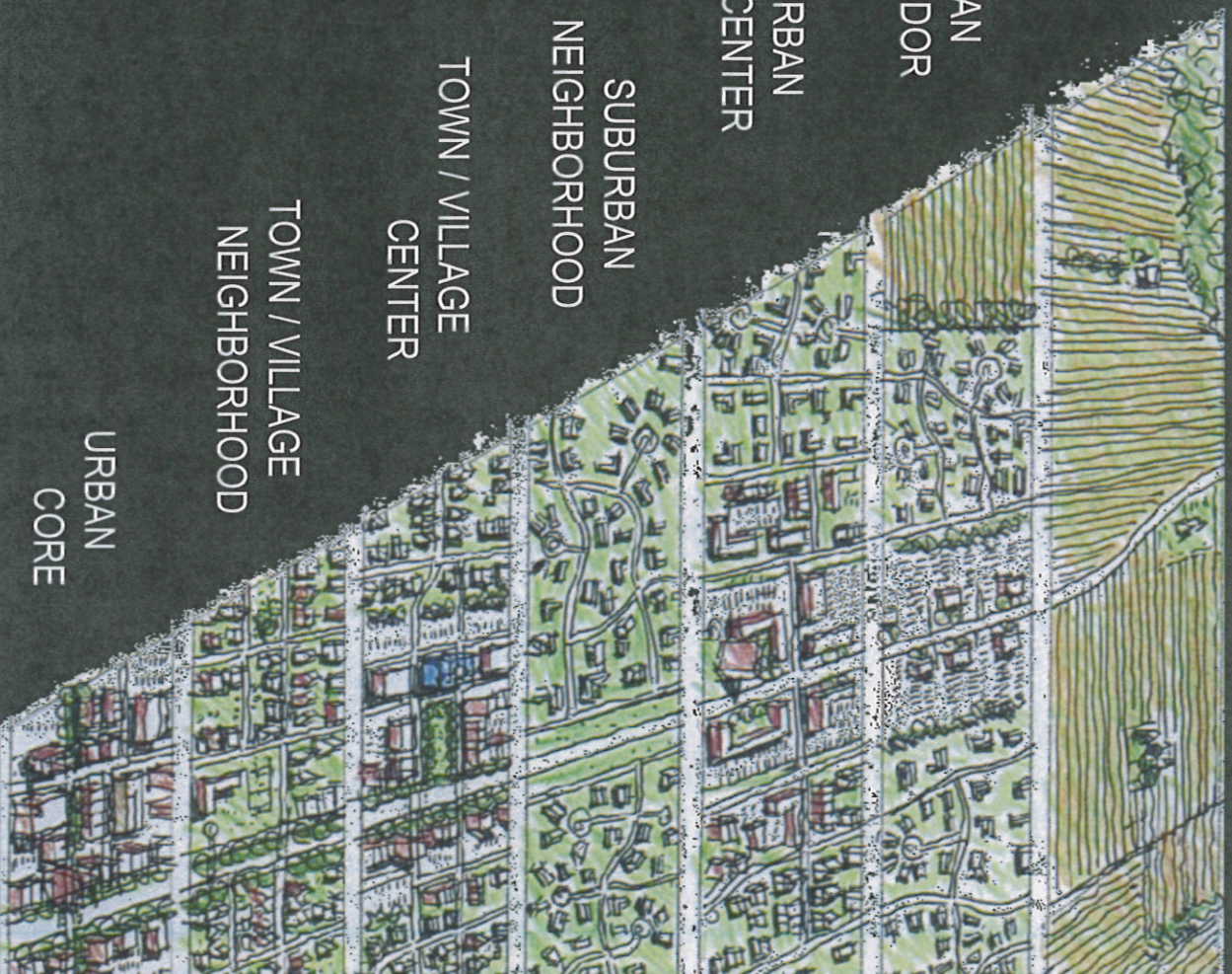
SUBURBAN
CENTER

SUBURBAN
NEIGHBORHOOD

TOWN / VILLAGE
CENTER

TOWN / VILLAGE
NEIGHBORHOOD

URBAN
CORE



A Thousand Words?



Commonwealth of Pennsylvania

Smart Transportation

FAQ

1. What is Smart Transportation?

Smart Transportation is partnering to build great communities for future generations of Pennsylvanians by linking transportation investments and land use planning and decision-making.

The ultimate goal of Smart Transportation is to create transportation facilities that are safe and affordable, responsive to the needs of all users, and support community planning goals.

2. Why are we doing this?

Our historic pattern of land development and transportation investments is no longer sustainable for a variety of financial, environmental, and social reasons. In Pennsylvania, as in other states, public funding is very limited for all transportation improvements. Costs are soaring, as global demand for raw materials has made new infrastructure exorbitantly expensive. Gas prices are higher than ever before, and concerns about global warming are at the forefront of the political agenda. Public funding for transportation projects is also very limited, and we need to use our limited resources more efficiently than before. **We must rethink how we plan, build, and manage our transportation systems if we are going to maintain Pennsylvania's economy and improve our quality of life.**

3. How is Smart Transportation different from what PennDOT is already doing?

Smart Transportation is not a totally new concept. Various projects that the Department is working on or has done in the past already exemplify principles of Smart Transportation. What PennDOT's Smart Transportation effort aims to accomplish is to ensure that these principles are consistently and consciously applied to ALL projects and that Smart Transportation become the standard approach for PennDOT's day-to-day operations.

4. Will Smart Transportation address safety?

Yes. Safety must not be compromised in any project, and "safety first" is a key Smart Transportation theme. Some of the major ideas in the Smart Transportation Guidebook are intended to enhance safety. For example, the concept of "desired operating speed" encourages motorists to travel at a speed compatible with the surrounding community.

5. Will Smart Transportation address traffic congestion?

Yes. Smart Transportation's goal is to address our transportation system's ability to meet regional and local mobility needs, and balance these needs with other project and community objectives. Transportation projects will continue to address congestion, and project teams are encouraged to consider creative means of doing so. Rather than focus solely on intersection or mainline widening, projects should also consider strengthening the overall roadway network. Bicycling, walking, and transit should be feasible options for more residents in a community. Techniques such as access management and signal coordination could be widely used.

6. Will Smart Transportation cost more than what we do today?

When Smart Transportation strategies are done early and consistently throughout the planning, design, and implementation stages of a project, Smart Transportation will cost less than most conventional transportation solutions. The key is to identify opportunities for cost savings by making sure that existing infrastructure investments are taken care of, that project needs are clearly understood and defined, that we use flexible design, that high-value/low-cost projects are prioritized, and that opportunities for sharing resources (across jurisdictions and across agencies) are used.

In some select instances, the upfront costs of Smart Transportation projects might seem to be slightly more expensive than short-term quick fixes, but the longer term cost savings and quality of life returns of a comprehensively thought-out Smart Transportation solution will be far more substantial.

7. Is Pennsylvania the only state doing Smart Transportation?

No. Together with Pennsylvania, many states (more than 25%) are already making significant strides by following a Smart Transportation model to how they plan and design their infrastructure. Among the states leading this effort are Massachusetts, Washington, Missouri, Oregon and Vermont. In fact, New Jersey DOT jointly developed the Smart Transportation Guidebook with PennDOT and the Delaware Valley Regional Planning Commission.